

Summer 2011 Internship in Glacier National Park's Native Plant Nursery

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above: *Vaccinium* seeds under microscope

The beginning of June 2011, I had the privilege to experience a seasonal internship in Glacier National Park, working in the Native Plant Nursery. While working at Glacier I learned the ins and outs of propagating plants, harvesting seeds from native species, and transplanting them into the wild. I also got to work with the Reveg crew and Monitors, looking at *Pinus albicaulis* (White Bark Pine), and completing some rehabilitation projects on several campsites and trailheads. During this time I got the opportunity to work on my senior thesis project that focuses on the contributing factors towards dispersal and reproduction of the *Vaccinium* species (huckleberries).

My First day in the nursery began with a tour of the green house, nursery, office area, and headquarters from Sue. (Sue was my “go to” lady and taught me a

lot. Thank you Sue.) I began learning the process that plants had to go through to adapt to full sunlight, fluctuating air temperature and weather. This is a procedure called “hardening off”. “Hardening off” consists of taking plants that have spent a sufficient amount of time growing in the green house outdoors for a couple hours a day, returning them to the green house, and repeating for a few days until the plants have reached a full day outside. The plants are then moved to the shade house, where they stay for a certain time, depending on how long they take to acclimate. From the shade house the plants are put out into the nursery to grow in full contact with the elements. The plants stay in the nursery until they are mature enough to be transplanted into the wild.

During the plant’s stay in the nursery they are taken care of by the Nursery crew. Nursery crew duties include, but are not limited to: weeding, fertilizing, trimming (pruning), up-potting, culling, washing dishes, some office work and many other tasks that can be called “busy work”. When you weed, depending on container size, you can use your fingers or tweezers. If the plants are in cone containers, you gently tap the top of the container against the palm of your hand until the plant, weeds and soil top horizon come out. You then peel the liverworts, moss, and any *Cardamine hirsuta* that you might find (they’re everywhere in the nursery) out, and dispose of them in a bucket for weeds. You don’t want to pull this layer of invasive vegetation off and leave the top of the plant exposed, so putting a little top fill of fresh soil and water is necessary. Fertilizing is done every few weeks, and takes an entire day. Trimming of plants and shrubs is done when the fauna is out growing its container or is infested with aphids or other bugs. Up-potting is the transfer of

plants or cuttings to larger pots as they out grow the smaller containers. Culling is taking a plant that is dead (unsuccessful), removing organic matter from the container and recycling the soil to the culled soil bin. Once the container is empty it we call it a dish, because it needs to be washed. Washing dishes is what seemed like a never-ending task in the nursery, but with the help of an amazing volunteer named Jo, that sky-high stack of dishes was knocked down to nothing by the end of the season. My big nursery office duty this season was taking and inputting the fall inventory. This was accomplished by going out and counting all of the successful plants for each species from the fall seed collection, sorting out the dead plants from the live plants, recounting, and the numbers into the park's database.

Volunteer day and a tour of the Native Plant Nursery was every Tuesday. Volunteers helped with an incredible amount of up potting, weeding, and seed collecting. Preparations for Volunteer day entail: premixing soil, and flagging collections for weeding and culling. Keeping the volunteers busy, and prioritizing tasks efficiently and successfully is another job in itself, but with the help and direction from Heidi, our Nursery Volunteer Coordinator it was always a good day to get a lot accomplished, and have fun doing it.

Seed collecting is an important part of nursery production. How would we have plants in the nursery without seeds to grow the plants from? Seed collection work starts in the spring when flora is blooming back from winter dormancy. Collecting seed is done according to elevation and area, and when the seed is sown its given a location id, and number with three separate number parts telling the year collected, years sown and species number. A collection calendar is made up and

helps the lead seed collector have an idea of what seed in certain areas mature sooner. Scissors and scythe are used for cutting. Plastic or paper sacks, depending on size and texture of seed are used as containers. After the seed is collected it is bagged, weighed and sent to Bridger Nursery in Bridger, Montana. Bridger Nursery helps Glacier get a start on large collections over the winter, and then sends the plants back to the nursery in the spring. Thanks to this part of the job and Stacy, by the end of the season, I was able to identify quite a few plant species by their leaves, seeds and flowers out in the field and in the nursery. Some of these species include, but are not limited to: *Actai rubera* (baneberry), *Oplopanax horridus* (devils club), *Maianthemum racemosum* (false salomon's- seal), *Rubus parviflorus* (thimble berry), *Linnaea borealis* (twinline), *Galium boreale* (northern bedstraw), *Fragaria virginiana* (wild strawberry), *Antennaria* sp (pussytoes), *Carex* spp (sedges), *Potentilla* spp (cinquefoils), *Bromus* (brome grass), *Phacelia hastate* (silver-leaved scorpionweed), *Deschampsia cespitosa* (tufted hairgrass), and *Lonicera involucrate* (black twin berry). Thank you William for reminding me that common names are for the weak.

I got the chance to go out with the Reveg and Monitors to Scenic Point, Upper Two Medicine Lake, and Red Eagle Falls. These were all great trips and hikes where I learned how to rehabilitate campsites and trails through transplanting, along with collecting data for the *Pinus alba* restoration project.

I began inquiring early on in the season for resources and advice on how to approach my thesis project. I utilized the knowledge and suggestions of co-workers, books available from the nursery, and the Glacier Park library for

dependable resources. After hearing of a rare species of *Vaccinium* called *Vaccinium myrtilloides* or velvetleaf huckleberry that is found only in the West Glacier and Apgar village areas of Glacier national park, I decided to narrow my broad topic of *Vaccinium* to this single species. With help and direction from Joyce as to what type of media (soil mixture) and containers to use, and advice to extract some soil from around a Vac myr bush to capture the mycorrhizal fungi necessary for growth success, I was ready to start. After collecting some Vac myr berries, I used a peel and smudge seed extracting technique where you peel some of the skin from the berry, and smudge it across a paper towel for about an inch. Then I let the seeds dry for about seven days. I then took a 1:1 peat and sand mixture along with some of the soil I extracted from an area containing velvetleaf huckleberry, mixed it, put into a flat, sprinkled the seeds over the top, covered them with a thin layer of soil and watered. I am using a daily log, and plant development record sheet to aid in tracking steps taken along with progress if any.

Another duty not listed above, but that I enjoyed was live trapping *Uroditellus columbianus* (Columbian ground squirrels). We caught and relocated 27 over the summer and noticed less predation on plants throughout the nursery.

What an amazing and unforgettable learning experience my summer of 2011 in Glacier National Park turned out to be. No matter where I was, I always took a minute (sometimes more) to look up at where I was, and be thankful, it made every moment in Glacier worth it. I look forward to returning next season and continuing advancement on my senior thesis and having the opportunity to work around wonderful people in a great place.

